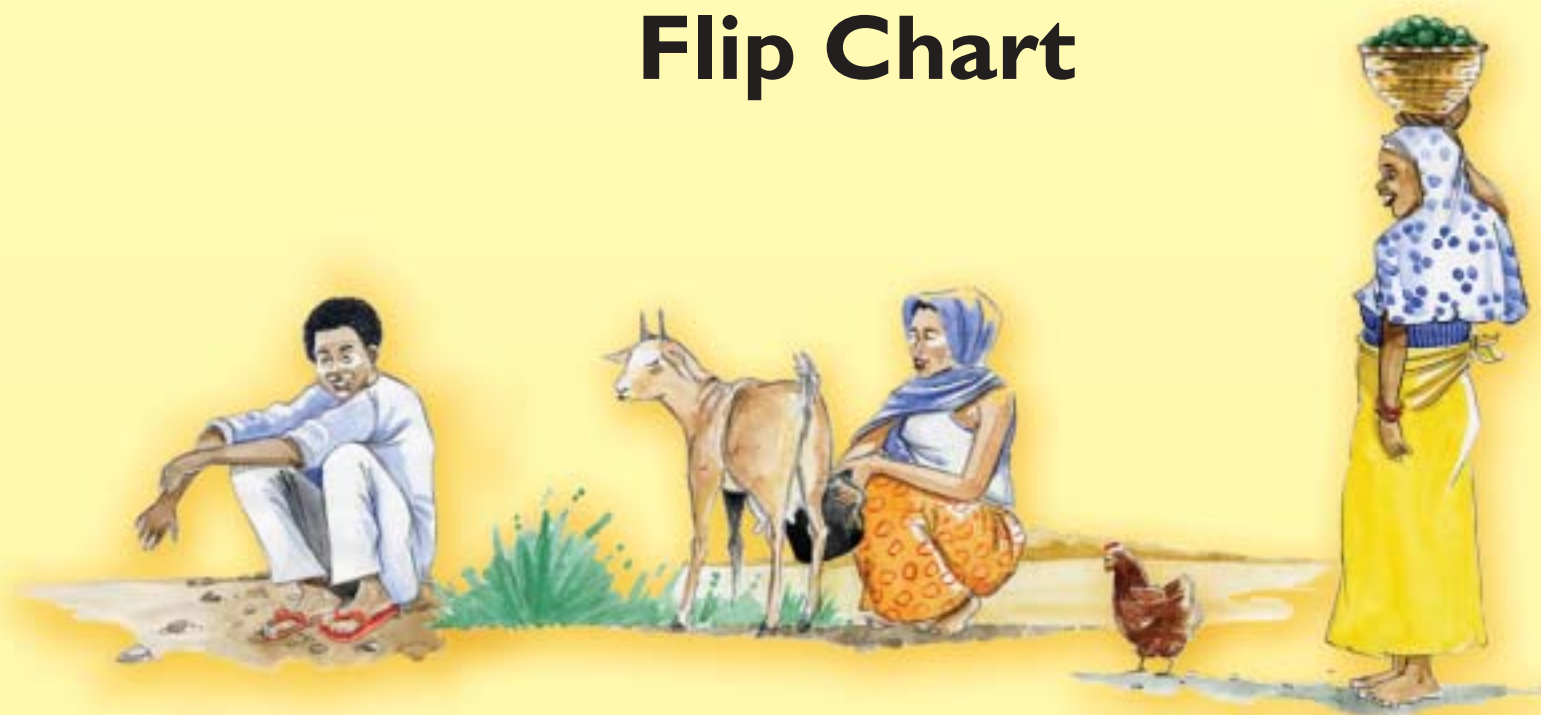




MICRONUTRIENTS

Flip Chart



FSAU is managed by FAO



Food Security Analysis Unit for Somalia

FACILITATOR'S SCRIPT

Micronutrients are important for our mental and physical health.

But, what are micronutrients and why do our bodies require them? How are our bodies affected when we don't get enough micronutrients? Let's learn more.

- Micronutrients are vitamins and minerals that are essential for healthy growth and development but required only in small amounts.
- Micronutrients influence adult productivity, resistance to illness, educational achievement, child survival and maternal health. Here is how:

Iron	Helps to make blood and is vital in energy production
Vitamin A	Helps to maintain a healthy immune system and good eyesight
Iodine	Promotes normal physical and mental development
Zinc	Promotes normal growth and wound healing
Vitamin C	Essential for healthy teeth, gums, bones and skin, and fights colds.

The body needs some micronutrients in relatively large amounts, for example calcium.

Calcium Helps to build strong bones for a strong body.

A balanced diet that includes a variety of nutritious foods provides the essential nutrients. Foods that are fortified with these essential nutrients are good sources too. Supplements also provide these essential micronutrients.

Low levels or a lack of these nutrients in the body lead to micronutrient deficiency diseases.

DISCUSSION QUESTIONS

1. List some common foods. Which nutrients does each food contain?
2. Do you know any micronutrient deficiency diseases? Name them.
3. How do we prevent and treat micronutrient deficiency diseases?

Micronutrients affect every aspect of our lives!

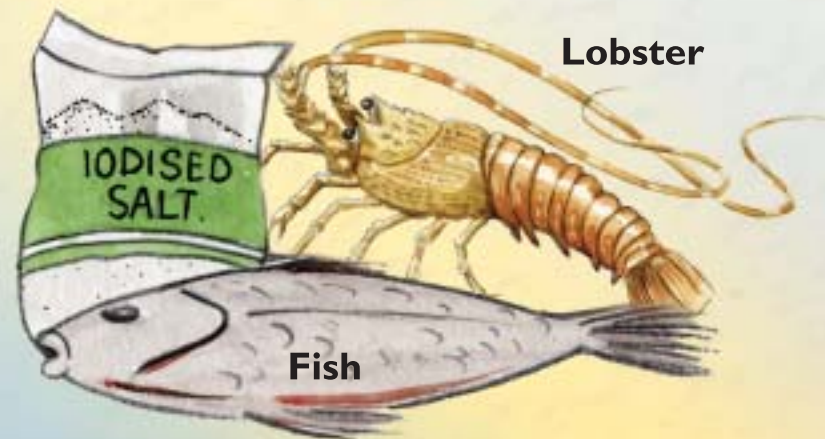
Iron

Increases work productivity



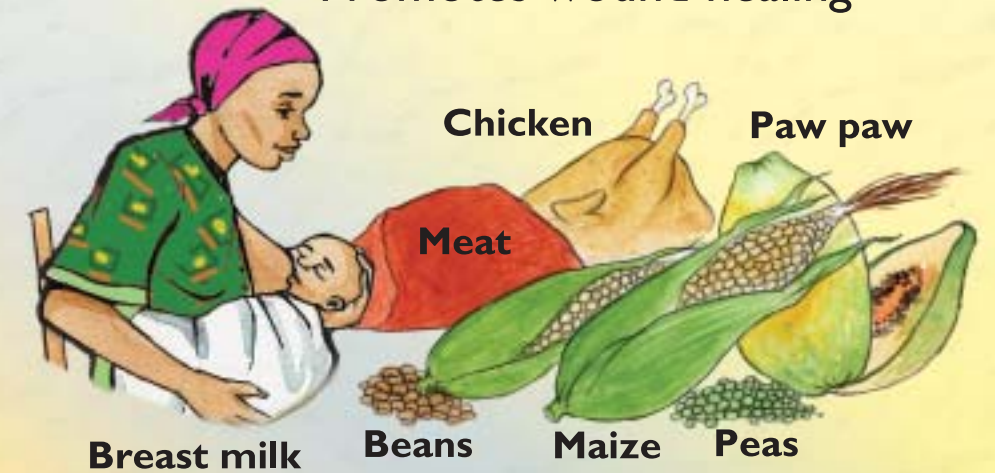
Iodine

Develops intelligence



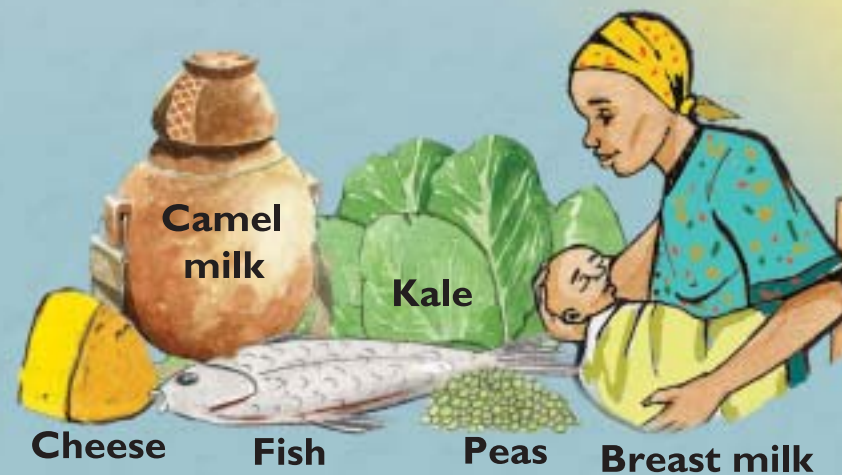
Zinc

Promotes wound healing



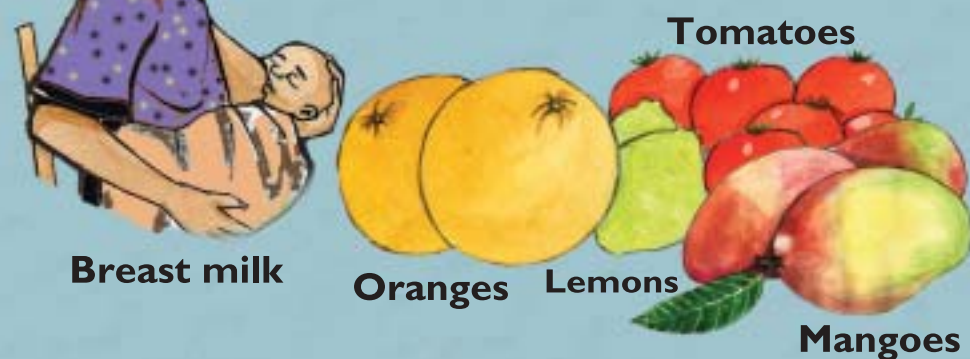
Calcium

A micronutrient required in relatively large amounts



Vitamin C

Keeps away colds



Vitamin A

Keeps away diseases



Iron

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Iron helps to make blood. It produces haemoglobin, the protein in red blood cells that carries oxygen. Iron also helps to make essential enzymes that enable the brain, muscle, and immune systems to function properly.

Low levels or lack of iron in the body lead to iron deficiency. Severe lack of iron leads to iron deficiency anaemia (IDA).

Iron deficiency is the most common nutritional deficiency. Young children and pregnant women suffer high rates of IDA.

Pregnant women with IDA are at risk of having premature babies, complications and death during childbirth. Babies born to mothers with IDA have low birth weight, lower intelligence, higher infant mortality rate and decreased immunity.

Children, adolescents, and adults with IDA are dull, have decreased immunity, lower concentration, intelligence, job productivity and physical capacity.

Iron is found in meat, liver, fish, chicken, eggs, dark green leafy vegetables like kale and spinach, legumes like beans and peas, dried fruits like sultanas, and dates and in fortified flour and breakfast cereals.

Certain factors enhance the absorption of Iron. These include Vitamin C and lactic acid found in fermented milk.

Certain factors inhibit the absorption of iron. These include phytates, found in unrefined cereal, legumes and nuts; polyphenols found in tea, coffee and khat.

DISCUSSION QUESTIONS

1. Have you ever come in contact with someone with iron deficiency anaemia (IDA)? Describe some of the symptoms this person showed.
2. How do we prevent and treat IDA?

How do I tell that someone has Iron Deficiency Anaemia?

Someone with IDA has the following symptoms

- **Pallor:** Pale skin on the lining of the eyes, the inner mouth, gums and the nails
- **Fatigue:** Lack of vigour, tiredness and weakness
- **Brittle fingernails:** Nails become thin, white and break off easily. They may grow abnormally and get a spoon-shaped appearance
- **Sore tongue:** Tongue becomes sore, smooth, shiny and reddened
- **Brittle hair:** Hair thins out and breaks off easily
- **Shortness of breath:** Shortness of breath during a simple exercise like walking



Shortness of breath even during simple exercise.

- **Rapid heartbeat:** The heartbeat becomes very rapid and forceful due to shortness of breath
- **Unusual food cravings (pica):** A strong desire to eat non-food items like soil, charcoal, bones or dirt
- **Low blood pressure:** Low blood pressure with position change from lying down or sitting to standing up
- **The person becomes very irritable**
- **Low immunity:** Decreased immunity and increased vulnerability to infection
- **Headache:** The person experiences frontal headache
- **Decreased appetite:** Severe appetite decrease, especially in children

Vitamin A

FACILITATOR'S SCRIPT

Vitamin A is important for the maintenance of many body functions, especially the immune system. Vitamin A protects the body against night blindness and other eye illnesses.

Vitamin A protects children from dying from common childhood infectious illnesses like measles, malaria, and diarrhoea.

Low levels or lack of vitamin A in the body lead to vitamin A deficiency (VAD). VAD causes night blindness, partial or total blindness.

Children with VAD have high mortality rates due to lower immunity. These children suffer from many childhood illnesses like coughs, flu, colds, diarrhoea, malaria and measles. Children with VAD suffer very severe cases of measles, with serious complications that could lead to blindness, brain damage or death.

Vitamin A is found in yellow and orange-fleshed sweet potatoes, eggs, liver, milk including breast milk and milk products like butter, fermented milk, yoghurt, cheese and ghee; green leafy vegetables like spinach and kale, plus in yellow and orange fruits and vegetables like pumpkins, carrots, guavas, mangoes, and paw paws.

Vitamin A rich foods should be consumed alongside fatty foods to enhance absorption.

DISCUSSION QUESTIONS

1. What signs in a patient would lead you to diagnose vitamin A deficiency?
2. How can your local community increase its vitamin A intake?
3. Do you routinely give vitamin A drops to babies when you give the measles immunisation?

How do I tell that someone has Vitamin A Deficiency?

Someone with VAD has the following symptoms:

◆ Eye symptoms

- Night blindness
- Inflammation of the eye (conjunctivitis)
- Inflammation of the cornea
- Eye lesions
- Dry eyes
- Bitot spots

◆ Skin symptoms

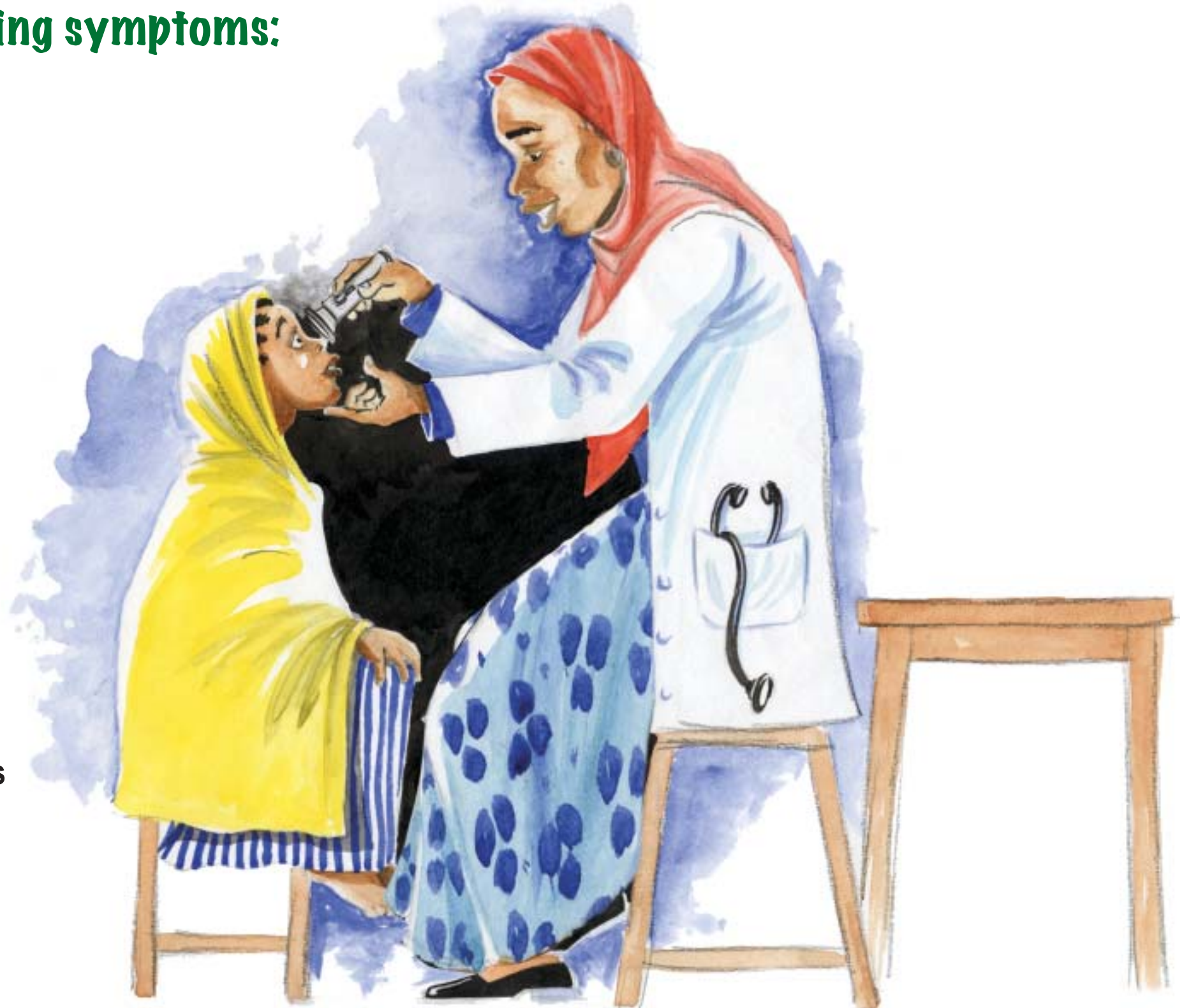
- Rough skin
- Dry skin

◆ Decreased immunity

- Easily gets respiratory infections like coughs, flu and colds
- Easily gets urinary infections
- Easily gets common infectious diseases like diarrhoea, malaria and measles

◆ Growth retardation in children

◆ Loss of appetite



Blindness and reduced night vision are some symptoms of VAD.

Iodine

FACILITATOR'S SCRIPT

The body needs iodine for normal mental and physical development. Iodine is essential for the function of the thyroid gland, which is responsible for development.

Iodine is also essential for foetal development.

Young children especially need iodine to prevent mental retardation and growth failure.

Lack of iodine leads to iodine deficiency disorder (IDD). Severe IDD leads to goitre (enlarged thyroid), cretinism (dwarfism and mental retardation caused by a thyroid deficiency). Low iodine deficiency also leads to reduced intelligence.

IDD is irreversible but preventable.

The main source of iodine is iodised salt. Seaweed, seafish and foods grown in iodine-rich soils also provide iodine.

DISCUSSION QUESTIONS

1. Does your community have access to iodised salt? If not, how can access to iodised salt be improved?
2. What myths in your community surround goitre, cretinism and dwarfism? According to local myths, what causes these conditions?

How do I tell that someone has Iodine Deficiency?

- ◆ **Goitre, or enlargement of the thyroid gland, is an advanced symptom of IDD. Someone with goitre has the following symptoms:**

- Swollen front of the neck
- Lump in front of the neck
- Protruding eyes

- ◆ **Severe IDD in pregnancy or infancy causes dwarfism and cretinism, a condition that has the following symptoms:**

- Severe mental retardation
- Stunted physical growth
- Enlarged head
- Deafness

- ◆ **IDD may eventually lead to hypothyroidism, which has the following symptoms:**

- Fatigue
- Weight gain
- Weakness
- Depression
- IDD can also cause hyperthyroidism, which causes weight loss, rapid heartbeat and appetite problems.



Mother suffering from goitre, a swelling around the throat.

Zinc

FACILITATOR'S SCRIPT

Zinc promotes normal growth and development.

It promotes wound healing, maintains a healthy immune system and helps prevent diarrhoea in young children.

Low levels of zinc or lack of zinc in the body results in zinc deficiency.

Children and pregnant women are at high risk of zinc deficiency.

Pregnant women with zinc deficiency are at risk of premature labour and miscarriages, inefficient labour and delivery, stillbirths, lower mental ability of the child, retarded foetal growth and low immunity of both mother and baby.

Children and adults with zinc deficiency are at higher risk of infections like diarrhoea, pneumonia and malaria.

Zinc is found in meat, liver, kidney, fish, chicken and cereals (eaten alongside vegetables to enhance zinc absorption).

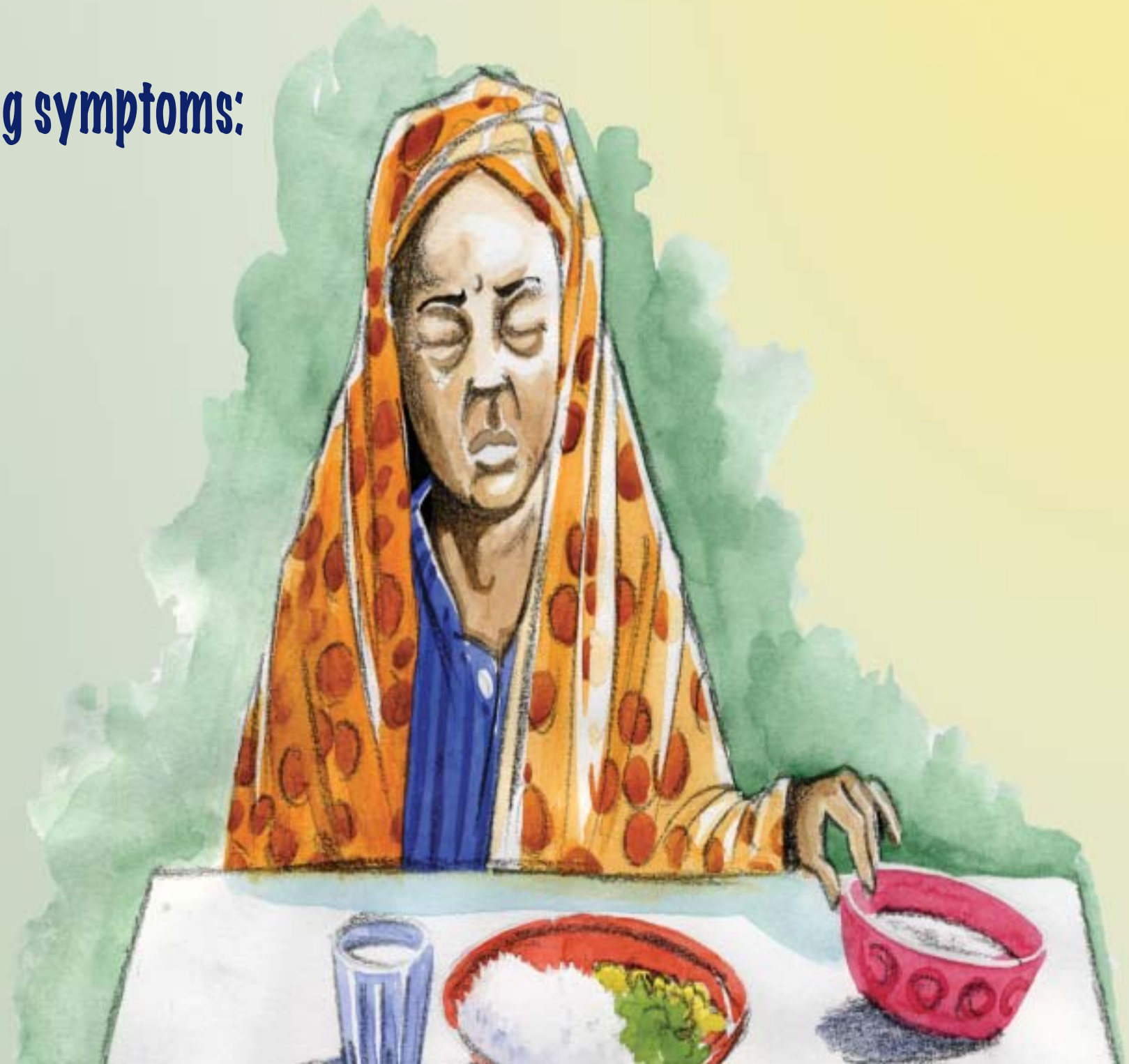
DISCUSSION QUESTIONS

1. Write a meal plan for an average family within your community. Is there adequate zinc in the diet?
2. Do you routinely give zinc supplements to all children under five with diarrhoea?
3. How can your local community improve its zinc intake?

How do I tell that someone has Zinc Deficiency?

Someone with zinc deficiency has the following symptoms:

- Slow growth in children
- Loss of hair
- Various skin lesions
- Peeling skin
- Slow healing of wounds
- Frequent and recurring infections
- Severe diarrhoea



Vitamin C

FACILITATOR'S SCRIPT

Vitamin C is essential for healthy skin, teeth, gums and bones. It helps to heal wounds, produce red blood cells, build immunity and fight bacterial infections.

Vitamin C also enhances the absorption of iron in the body.

Low levels or lack of vitamin C in the body lead to vitamin C deficiency.

Severe vitamin C deficiency leads to scurvy.

People with vitamin C deficiency are at higher risk of getting common bacterial illnesses like colds.

Vitamin C is found in fresh fruits and vegetables like tomatoes, onions, green leafy vegetables like cabbage, green pepper, garlic, parsley, citrus fruits (oranges, limes, lemons), paw paw, pineapple and watermelon.

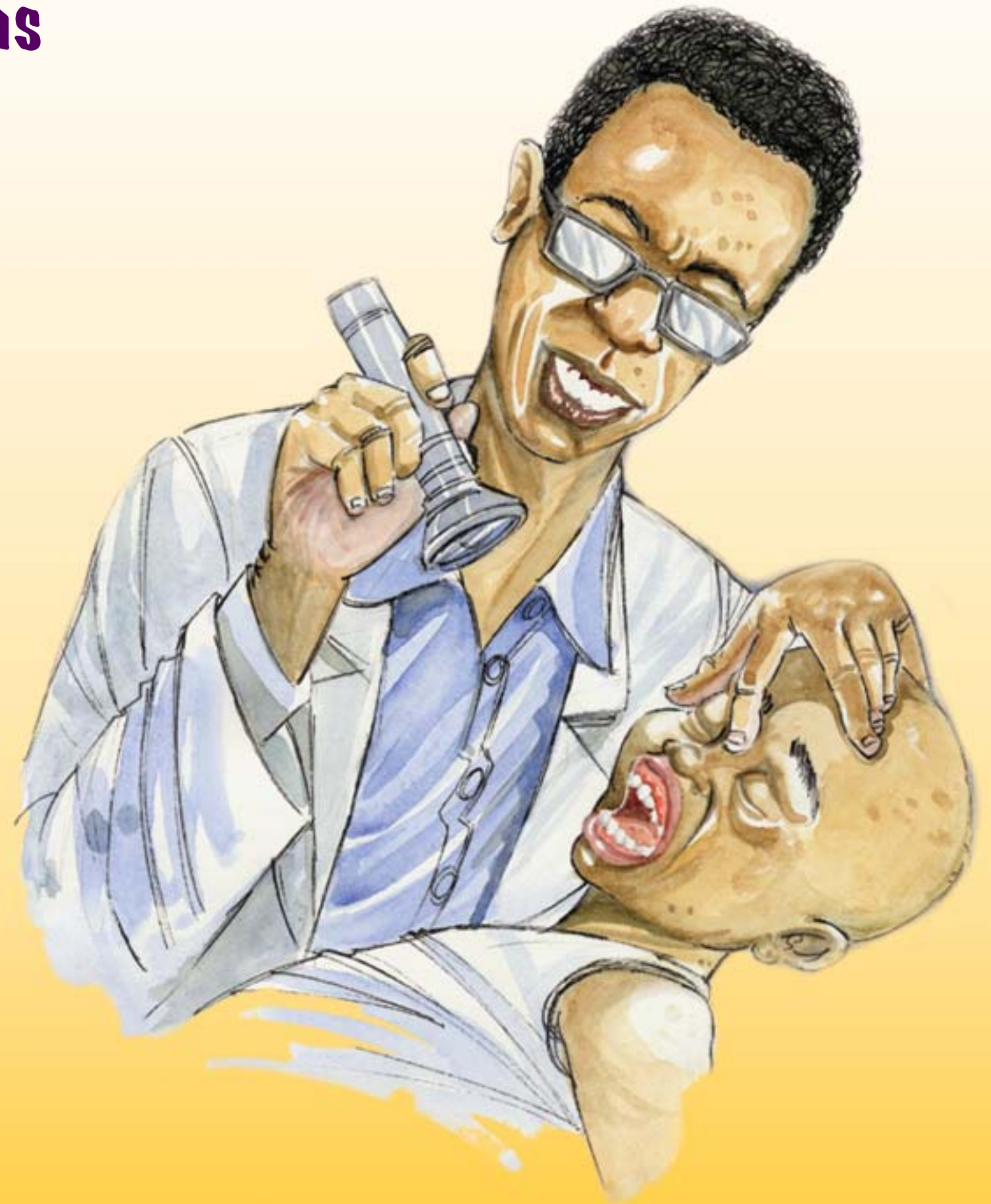
DISCUSSION QUESTIONS

1. **Populations with limited or no access to vegetables and fruits are at high risk of vitamin C deficiency. What measures can such communities take in order to ensure adequate intake of vitamin C?**
2. **List common vitamin C sources in your local diet.**
3. **Cooking and food preparation methods can easily deplete the vitamin C content in food. Suggest ways of minimising vitamin C loss during cooking and food preparation.**

How do I tell that someone has Vitamin C Deficiency?

Someone with vitamin C deficiency (scurvy) has the following symptoms:

- Skin that bruises and bleeds easily
- Swollen or painful joints
- Bleeding gums
- Easily gets colds
- Poor digestion
- Bleeding on fingertips, old scars and internal bleeding
- Soft, swollen purple gums
- Bones that easily fracture
- Slow-healing wounds and fractures
- Loss of appetite



Child suffering from bleeding gums.

Calcium

FACILITATOR'S SCRIPT

Calcium is a mineral that is used for building bones and teeth and in maintaining bone strength. Calcium is also used in muscle contraction and blood clotting.

The body requires calcium in relatively large amounts. Low levels or lack of calcium in the body result in calcium deficiency.

Young children, women, elderly people who do not have access to calcium-rich foods suffer high rates of calcium deficiency.

Severe calcium deficiency leads to rickets in children and osteoporosis in women and the elderly. Osteoporosis occurs when the mass of the bones is so reduced that the skeleton loses its strength.

Calcium is found in milk and milk products like yoghurt, fermented milk, cheese, butter, ghee and cream. Other sources are dark green leafy vegetables like kale and spinach, and in beans, peas and bony fish like salmon or mackerel.

DISCUSSION QUESTIONS

1. Besides milk and milk products, what other foods in your local diet provide calcium?
2. Suggest ways of improving access to milk and milk products in your community.
3. Women, young children and the elderly, especially need adequate calcium. Why is this so?
4. Some infant and young children feeding practices predispose children to calcium deficiency, and in severe cases rickets. Do you know any such practices? Are they practised in your community? How can they be prevented?
5. Vitamin D is essential to calcium absorption in the body. What is the best and most available source of vitamin D?

How do I detect Calcium Deficiency?

Someone with calcium deficiency may have the following symptoms:

- **Weak teeth that easily fall out**
- **Lack of sleep**
- **Premenstrual cramps**
- **High blood pressure**
- **Osteoporosis in adults**
 - Bones easily fracture due to minor falls and bumps
 - Bones are so weak that they break under their own weight
 - Hump in the back
 - Curvature of the spine
 - Rounded shoulders
 - Losing height (becoming shorter)
 - Inability to hold the body upright



Osteoporosis in adults

ABOUT THESE GUIDES

The Food Security Analysis Unit has prepared some materials on Micronutrient Deficiencies. The materials are intended to serve as an introduction to the major micronutrient deficiency disorders and it is hoped that they will promote a greater awareness of the importance of this aspect of malnutrition. Users of the materials are encouraged to pay attention to the detection of micronutrient deficiency disorders and to become active in the development of interventions for their prevention and management.

Pocket Guide

The pocket guide provides a brief overview of the major micronutrient deficiencies, signs and symptoms and reasons for deficiencies. It also provides some guidance on options for prevention and management of micronutrient deficiencies.

The pocket guide has been designed primarily for those actively involved in nutrition, health and food security work. The guide will be useful as a reference during work in a clinic or in a field setting and will be of particular use during nutrition assessments. Secondary target groups are project managers, community development workers (social workers) and school teachers.

Flip charts

The flip charts are to be used for educational sessions at health facilities or during training sessions for mid-level management. The target groups for these materials are health facility workers with a health background.

Wall charts

The wall charts have been designed for use in health facilities and will be distributed following training sessions using the flip charts. They can also be used in schools among other social places.

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Food Security Analysis Unit for Somalia

Kalson Towers - 3rd floor
Crescent Road, off Parklands Road
P.O. Box 1230, Village Market
Nairobi, Kenya

Tel: +254 (020) 3745734/3748297
Fax: +254 (020) 3740598



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